X1116
Millard TV

SERVICE MANUAL

FISHER®

PH 415K

PORTABLE HIGH FIDELITY STEREO RADIO/CASSETTE RECORDER

The first name in high fidelity

US

SPECIFICATIONS

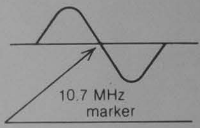
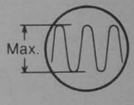
Power Source	
AC	AC120/210/240V, 60Hz
DC	12V(UM-1, D Cell, HP2, R20, Monozellen x 8)
Output Power	4.0 W x 2 (10%)
Power Consumption	25 W
Recording System	AC Bias
Erasing System	AC Erasing
Tape Speed	4.75 cm/sec. ±3%
Fast Forward Time	110sec.(C-60 cassette)
Rewid Time	110sec.(C-60 cassette)
Wow & Flutter	0.06 % WRMS
Frequency Response	60 — 12500Hz

Signal to noise Ratio	DOLBY NR ON Better than 60 dB DOLBY NR OFF Better than 50 dB
Hum & Noise	Less than 45 dBs
Crosstalk	Better than 55 dB
Channel Separation	Better than 50 dB
Terminal Impedance	
MIC	3.3 k ohms
Ext. Speaker	8 ohms
Headphone	8 ohms
Frequency Range	
MW	530 — 1,605 kHz
SW_1	2.3 — 7.0 MHz
SW_2	7.0 — 22.0 MHz
FM	88 — 108 MHz

ALIGNMENT PROCEDURES

FM ALIGNMENT

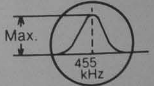
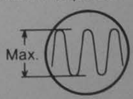
Standard test frequency 400 Hz and deviation 22.5 kHz

Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustment	Remarks
		INPUT	OUTPUT				
1	Calibration of IF	Place ouptut of gene-scope on Trap coil(L3) TP1	Connect input terminal of gene-scope to TP2	10.7 MHz	Lowest end	Turn T1,T2	
2	Calibration of Tuning Range	Connect signal generator to antenna terminal (J1) through dummy antenna.	Connect VTVM with 4 ohm dummy load and oscilloscope to speaker terminal.	87.45 MHz		L4	Obtain sine-curve and maximum amplitude. 
3				108.25 MHz	Highest end	CT2 (PVC)	
4	Adjustment of Tracking			90 MHz	90 MHz	L1	
5				106 MHz	106 MHz	CT1 (PVC)	
6	Repeat the above adjustments.						

* Use a screwdriver with plastic grip for all adjustment.

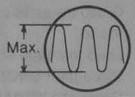
MW ALIGNMENT

Standard test frequency 400 Hz and modulation 30% at AM

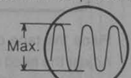
Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustment	Remarks
		INPUT	OUTPUT				
1	Calibration of IF for AM	Connect standard loop antenna to output terminal of gene-scope. Place bar antenna 60 cm away from loop antenna.	Connect VTVM with 4 ohm dummy load and oscilloscope to Ext. speaker terminal.	455 kHz	Lowest end	T3 and T4	Obtain symmetrical curve and maximum amplitude. 
2	Adjustment of IF Gain						
3	Calibration of Tuning Range	Connect standard loop antenna to output of signal generator. Place bar antenna 60 cm away from loop antenna.	Connect VTVM with 4 ohm dummy load and oscilloscope to Ext. speaker terminal.	515 kHz		L10	Obtain sine-wave of 400 Hz and maximum amplitude. 
4				1620 kHz	Highest end	CT3	
5	Adjustment of Tracking			600 kHz	600 kHz	L7 (MW bar ant. coil)	
6				1400 kHz	1400 kHz	CT7	
7	Repeat the above adjustments.						

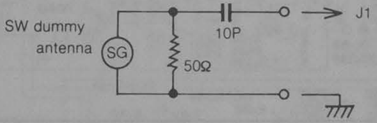
ALIGNMENT PROCEDURES

SW1 ALIGNMENT

Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustment	Remarks
		INPUT	OUTPUT				
1	Calibration of Tuning Range	Connect signal generator to terminal (J1) through dummy antenna.	Connect VTVM with 4 ohm dummy load and oscilloscope to Ext. speaker terminal.	2.25 MHz	Lowest end	L9	Obtain sine-wave of 400Hz and maximum amplitude. 
2				7.2 kHz	Highest end	CT4	
3	Adjustment of Tracking			2.5 MHz	2.5 MHz	L6	
4							
5	Repeat the above adjustments.						

SW2 ALIGNMENT

Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustment	Remarks
		INPUT	OUTPUT				
1	Calibration of Tuning Range	Connect signal generator to antenna terminal through dummy antenna.	Connect VTVM with 4 ohm dummy load and oscilloscope to Ext. speaker terminal.	6.8 MHz	Lowest end	L8	Obtain sine-wave of 400 Hz and maximum amplitude. 
2				23 MHz	Highest	CT8	
3	Adjustment of Tracking			7 MHz	7 MHz	L5	
4							
5	Repeat the above adjustments.						



FM MPX ALIGNMENT

Step	Alignment	Connections		Tuning Dial Setting	Adjustment	Remarks
		INPUT	OUTPUT			
1	FM stereo	Connect TP2 to the GND.	Connect Frequency counter to TP3 12 PIN (IC2):	—	SVR1	Obtain 19 kHz on the frequency counter.

CASSETTE AMP ALIGNMENT

No.	Alignment	Setting	Instrument	Connection	Adjusted component	Adjustment
1	Playback level	NORMAL, Playback	VTVM, test tape MTT150,	TP402-GND (TP502-GND)	SVR401 (SVR501)	580mV
2	OSC frequency	NORMAL, BEAT CUT (1)	frequency counter,	R422	L404	60kHz±0.1kHz
3	Bias level	NORMAL, CUT (1)	VTVM	TP401-GND (TP501-GND)	SVR403 (SVR503)	4mV±0.1mV
4	Repeat steps 2 and 3.					
5	Record level	NORMAL, Record mode,	VTVM	TP401-GND (TP501-GND) at OSC Stop	SVR402 (SVR502)	550μV

Note) ( ) right channel

ALIGNMENT PROCEDURES

INSTRUMENTS:

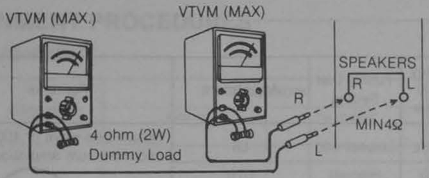
Audio Signal generator, two VTVM's, Frequency Counter, and Test Tape MTT-114, MTT-111, MTT-150 or TDK AD.

PRILIMINRY

remove the cabinet to access the need and other adjusting parts.

HEAD AZIMUTH ADJUSTMENT

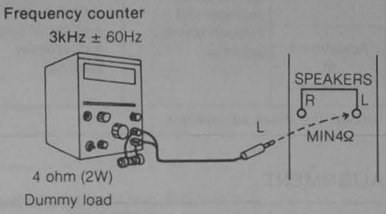
1. Press STOP/EJECT Button to open the cassette case.
2. Grasp the sides of the cassette case lid and pull it up to remove the lid.
3. Load test tape MTT-114 in the cassette case and close it.
4. Place the FUNCTION SELECT switch in the TAPE position.
5. Connect a VTVM to the LEFT EXT SP jack, and another VTVM to the RIGHT EXT SP jack.



6. Place the tape deck in the play mode.
7. Adjust the head azimuth adjusting screw for maximum playback output on the VTWM's.

TAPE SPEED ADJUSTMENT

1. Load test tape MTT-111 which has been recorded with a 3,000 Hz test signal.
2. Place the FUNCTION SELECT switch in the TAPE position.
3. Connect the frequency counter to the LEFT EXT SP jack in parallel with the VTVM.



4. Place the tape deck in the play mode.
5. Remove the label on the back of the motor and adjust the trim pot in the motor for 2,940 Hz to 3,060 Hz reading on the frequency counter. Cover the adjustment opening with a piece of adhesive tape after the adjustment is completed.

MECHANICAL ADJUSTMENT

Can not be done.

ITEM	MODE	SPEC	MEASUREMENT METHOD	REMARKS
Pinch roller adjustment	Playback	300∿500 gr	Hook the spring gauge to pinch roller metal and pull it away from the capstan. Measure the pressure the moment the pinch roller comes in contact with the capstan and the pinch roller starts rotating.	See figure 1.
Take-up torque adjustment	Playback	40∿70 g.cm	Mount the cassette torque meter in the same way as the cassette tape. The take-up torque is shown on the torque meter.	—
Fast-forward and rewinding torque adjustment	F.F or rewind	55∿150 g.cm	Mount the cassette torque meter in the same way as the cassette tape. The F.Forward and rewind torque is showh on the torque meter.	—
Wow and flutter JIS weighted	Playback	0.1%	Play back 3kHz (tset) tape and read with the wow meter.	—

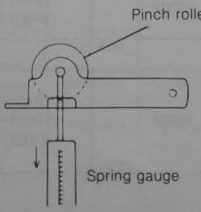


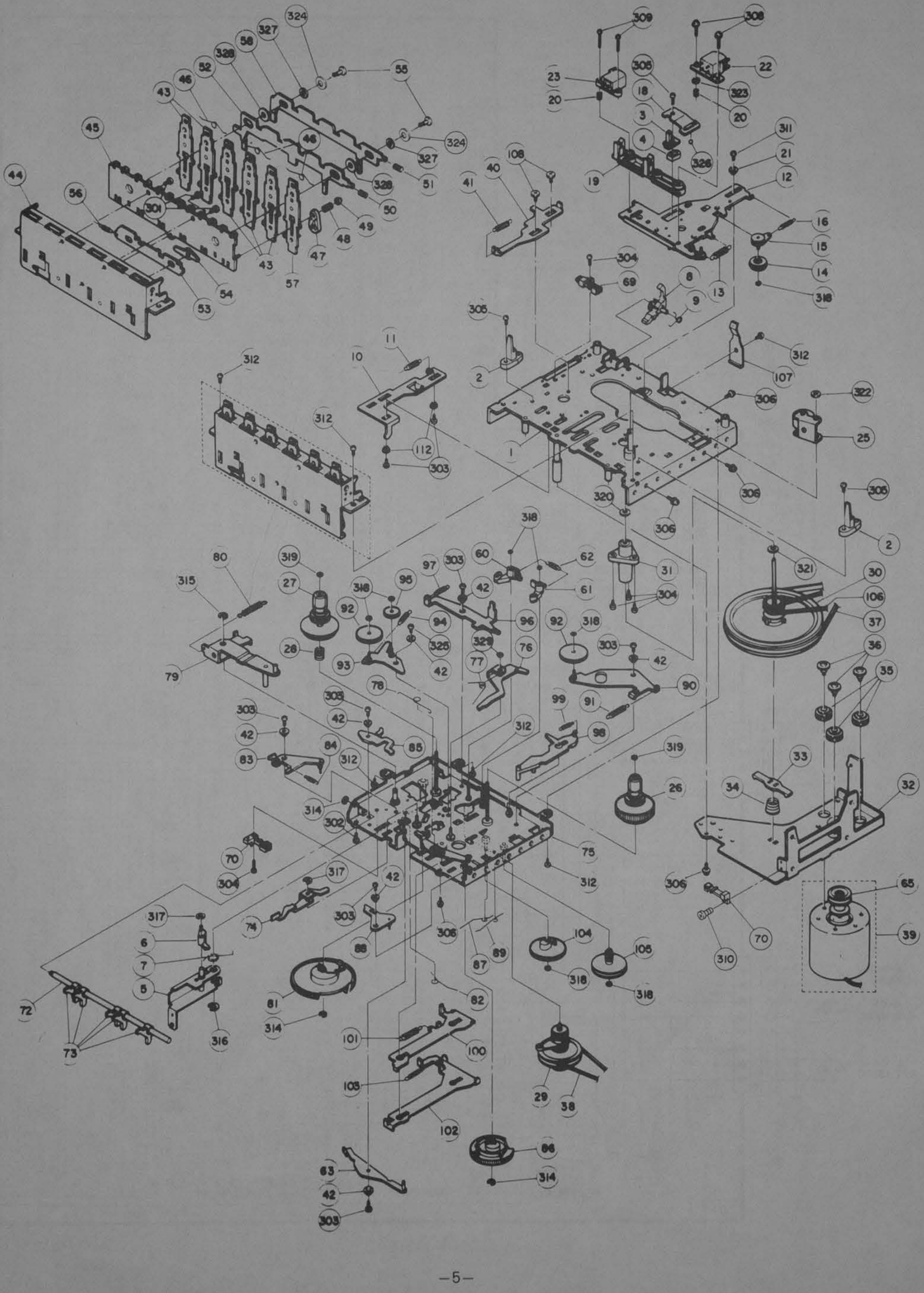
Fig-1

PARTS LIST(CASSETTE MECHANISM)

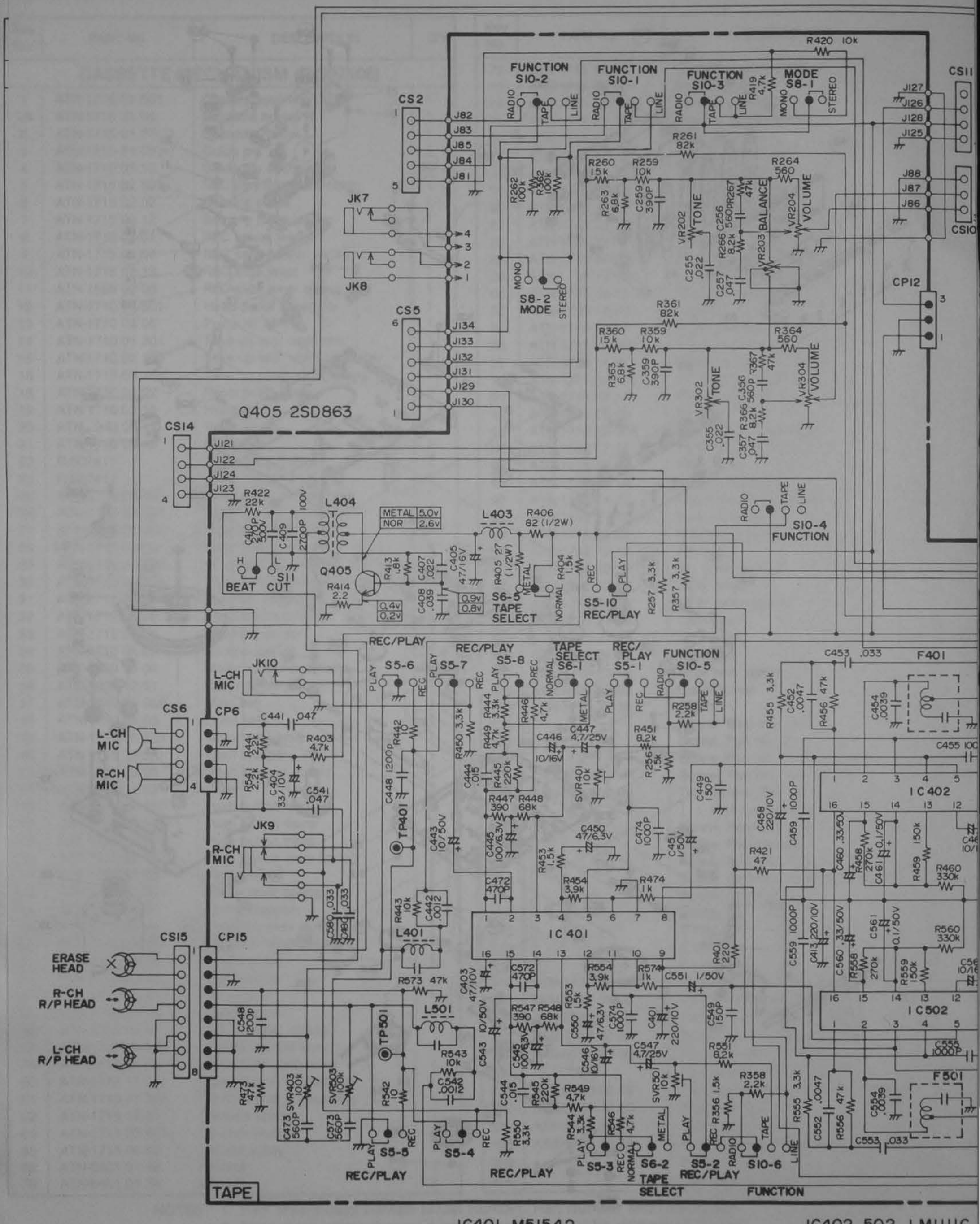
Key No.	PART No.	DESCRIPTION	Q'ty
		CASSETTE MECHANISM (R-S97106)	
1	ATN-1715 01 501	Chassis assembly	1
2R	ATN-1715 01 08	Cassette holder R	1
2L	ATN-1715 01 07	Cassette holder L	1
3	ATN-1715 01 09	Guide pin	1
4	ATN-1710 01 10	Guide pin cushion	1
5	ATN-1715 02 501	REC play arm assembly	1
6	ATN-1715 02 02	Sensing piece	1
7	ATN-1715 02 12	Sensing piece spring	1
8	ATN-1710 02 01	REC safety lever	1
9	ATN-1715 02 04	REC safety lever spring	1
10	ATN-1715 02 13	REC slide lever	1
11	ATN-1559 03 06	REC slide lever spring	1
12	ATN-1710 03 501	Head panel assembly	1
13	ATN-1710 03 06	Pressuer spring	1
14	ATN-1710 03 301	Take up idler assembly	1
15	ATN-1710 03 302	Take up idler shaft assembly	1
16	ATN-1710 03 16	Take up roller shaft spring	1
18	ATN-1710 03 22	Panel press plate	1
19	ATN-1710 03 18	Head base	1
20	ATN- 940 03 12	Head spring	2
21	ATN-1710 03 19	Collar	1
22	R-S07411	Record/Play head	1
23	R-S07412	Erase head	1
25	ATN-1710 04 301	Pinch roller assembly	1
26	ATN-1715 09 301	Take up reel assembly	1
27	ATN-1715 09 302	Supply reel assembly	1
28	ATN-1715 09 03	Back tention spring	1
29	ATN-1715 10 301	RF clutch assembly	1
30	ATN-1715 05 302	Flywheel capstan assembly	1
31	ATN-1710 05 02	Flywheel metal	1
32	ATN-1710 05 06	Flywheel metal plate	1
33	ATN-1710 05 04	Flywheel guide	1
34	ATN-1710 05 09	Damper spring	1
35	ATN-1520 13 04	Motor rubber cushion	3
36	ATN-1200 12 01	Collar screw, Motor	3
37	ATN-1240 09 05B	Main belt	1
38	ATN-1710 06 03	Drive belt	1
39	ATN-1715 06 303	Motor assembly	1
40	ATN-1715 23 06	Eject stopper	1
41	ATN-1715 23 05	Eject stopper spring	1
42	ATN-1710 11 03	Coller	7
43	ATN-1715 20 510	Push button lever	5
44	ATN-1715 20 503	Push button flame	1
45	ATN-1715 20 02	Push button base	1
46	ATN-1715 20 05	Push button lever spring	3
47	ATN-1222 17 02	Pause lever	1
48	ATN-1715 20 06	Pause lever spring	1
49	ATN-1700 09 35	Pause stopper	1
50	ATN-1715 20 14	Function lever spring	1
51	ATN-1715 20 23	Function lever spring	1
52	ATN-1715 20 24	Switch plate	1
53	ATN-1715 20 11	REC stopper	1
54	ATN-1715 20 13	RF stopper	1
55	ATN-1715 20 15	Plate stopper	2
56	ATN-1510 09 28	REC stopper spring	1
57	ATN-1715 20 509	PAUSE button lever	1
58	ATN-1715 20 25	Button function lever	1
60	ATN-1710 17 301	Breake arm L assembly	1
61	ATN-1710 17 302	Breake arm R assembly	1
62	ATN-1715 17 01	Breake spring	1
63	ATN-1715 22 501	Switch lever	1
65	ATN-1715 06 02	Motor pulley	1
69	ATN-6401 01 36	Switch	1
70	ATN-6401 01 38	Switch	2
72	ATN-1715 19 02	Operation lever shaft	1
73	ATN-1715 19 06	Operation lever	5
74	ATN-1715 08 16	Switching lever	1
75	ATN-1715 08 504	Sub chassis assembly	1
76	ATN-1715 21 14	Auto lever	1
77	ATN-1715 21 19	Auto lever spring	1
78	ATN-1715 08 03	Switch lever spring	1
79	ATN-1715 15 501	Lift arm assembly	1
80	ATN- 408 08 12	Lift arm spring	1
81	ATN-1715 14 06	M gear	1
82	ATN-1715 14 13	M gear spring	1
83	ATN-1715 14 503	M trigger arm assembly	1
84	ATN- 58 12 05	M trigger arm spring	1
85	ATN-1715 14 11	M trigger lever	1
86	ATN-1710 14 09	P gear	1
87	ATN-1715 14 14	P gear spring	1
88	ATN-1715 14 502	P gear trigger arm assembly	1
89	ATN-1715 14 07	P gear trigger arm spring	1
90	ATN-1715 12 504	FF. G. arm assembly	1
91	ATN-1715 12 15	FF. G. arm spring	1
92	ATN-1715 12 10	FF gear	2
93	ATN-1715 12 503	REW. G. arm assembly	1
94	ATN-1559 14 12	REW. G. arm spring	1
95	ATN-1715 12 07	REW. gear	1
96	ATN-1715 21 13	Regurating plate	1
97	ATN-1715 21 23	Regurating plate spring	1
98	ATN-1715 21 12	Sensing plate	1
99	ATN-1715 21 24	Sensing plate spring	1
100	ATN-1715 12 12	FF. lever	1
101	ATN-1715 12 17	FF. lever spring	1
102	ATN-1715 12 09	REW. lever	1
103	ATN-1715 12 16	REW. lever spring	1
104	ATN-1715 21 16	Cam gear	1
105	ATN-1715 21 15	M.P. gear	1
106	ATN-1715 21 25	Belt	1
107	ATN-1715 01 16	Pack hold spring	1
108	ATN-1700 12 02	Collar screw	2
112	ATN-1710 11 16	Collar	2
302		Screw, Bind Hd., 2x4	1
303		Screw, Pan Hd., 2x4, S-tight	8
304		Screw, Pan Hd., 2x5, S-tight	6
305		Screw, Pan Hd., 2x6, S-tight	3
306	ATN-9077 00 00	Tap. Screw, Pan Hd. With bind washer, 2x4	5
308		Screw, Pan Hd., 2x10	2
309		Screw, Pan Hd., 2x11	2
311		Screw, Bind Hd., 2.6x6, S-tight	1
312		Screw, Pan Hd., 2.6x4, S-tight	6
310		Screw, Pan Hd., 2x5	1
314		E ring, 2.0	3
315		E ring, 2.3	1
316		E ring, 3.0	1
317		E ring, 1.5	2
318	ATN-9420 00 00	Thrust washer, 1.2x3x0.25	7
319	ATN-9419 00 00	Thrust washer, 1.6x3.8x0.3	3
320	ATN-9377 00 00	Flat washer, Nylon, 2.5x7x0.5	1
321	ATN-9780 00 00	Thrust washer, 2.6x6x0.3	1
322	ATN-9732 00 00	Thrust washer, 2.1x5x0.4	1
323		Flat washer, Metal, 2.1x5x0.2	1
325	ATN-9686 00 00	Tap. Screw, Pan Hd., 2x3.5, S-tight	1
326	ATN-9654 00 00	Steel ball, 2.0	1
327	ATN-9748 00 00	Thrust washer, 2.5x4.7x0.13	2
328	ATN-9749 00 00	Thrust washer, 3.5x6x0.13	2
329		E ring, 1.2	1
324		Flat washer, Metal, 2.6x10x0.8	2

NOTES : 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

EXPLODED VIEW (CASSETTE MECHANISM)

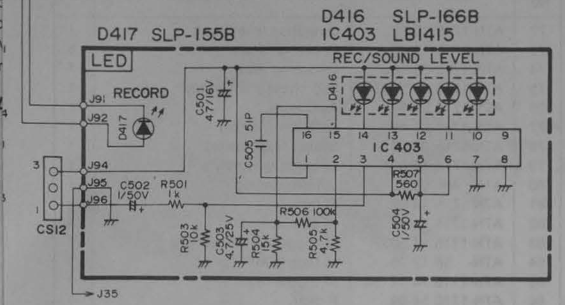


SCHEMATIC DIAGRAM

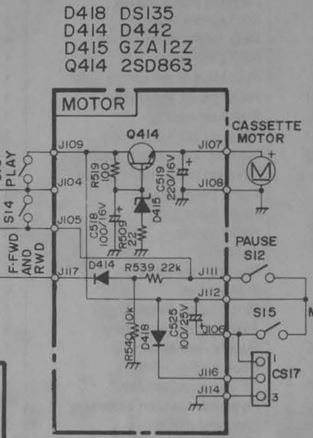


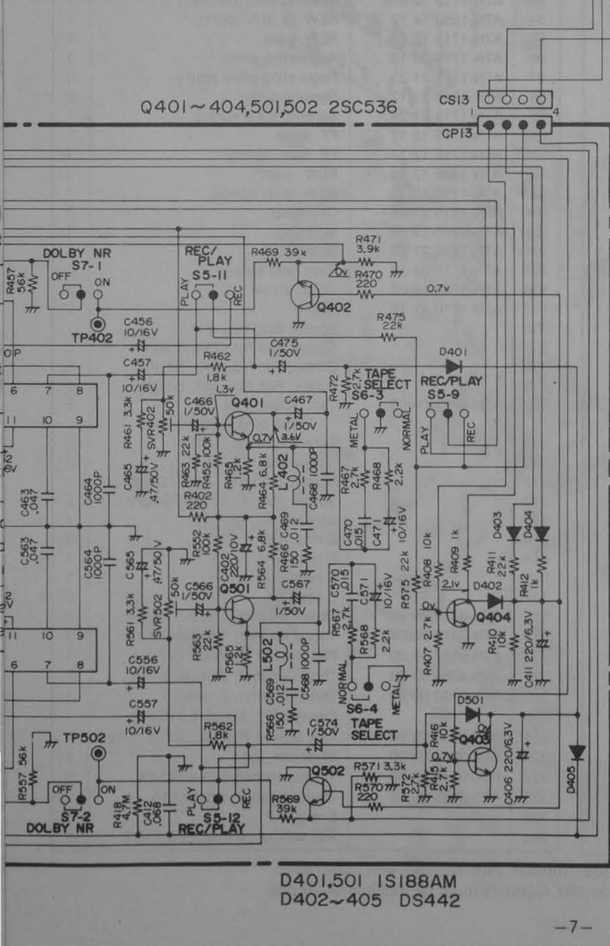
IC401 M51542

IC402, 502 LM1111C



IC	PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC 401	(V)	0.9	1.4	3.7	1.2	0	1.3	0	0	6.0	0	0	1.2	3.7	1.4	0.9	5.3
IC 402,502	(V)	2.7	2.8	2.7	2.8	2.7	2.9	2.8	2.8	0	2.8	2.9	1.5	1.5	1.1	1.0	6.3
IC 403	(V)	0.7	0	0	8.9	2.8	2.8	0	0		7.4	7.4	7.4	7.4	7.4	0.1	0.6



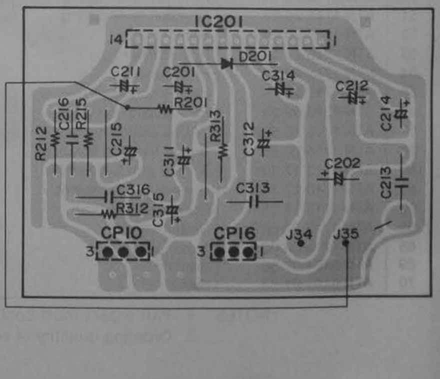


D401,501 1S188AM
D402~405 DS442

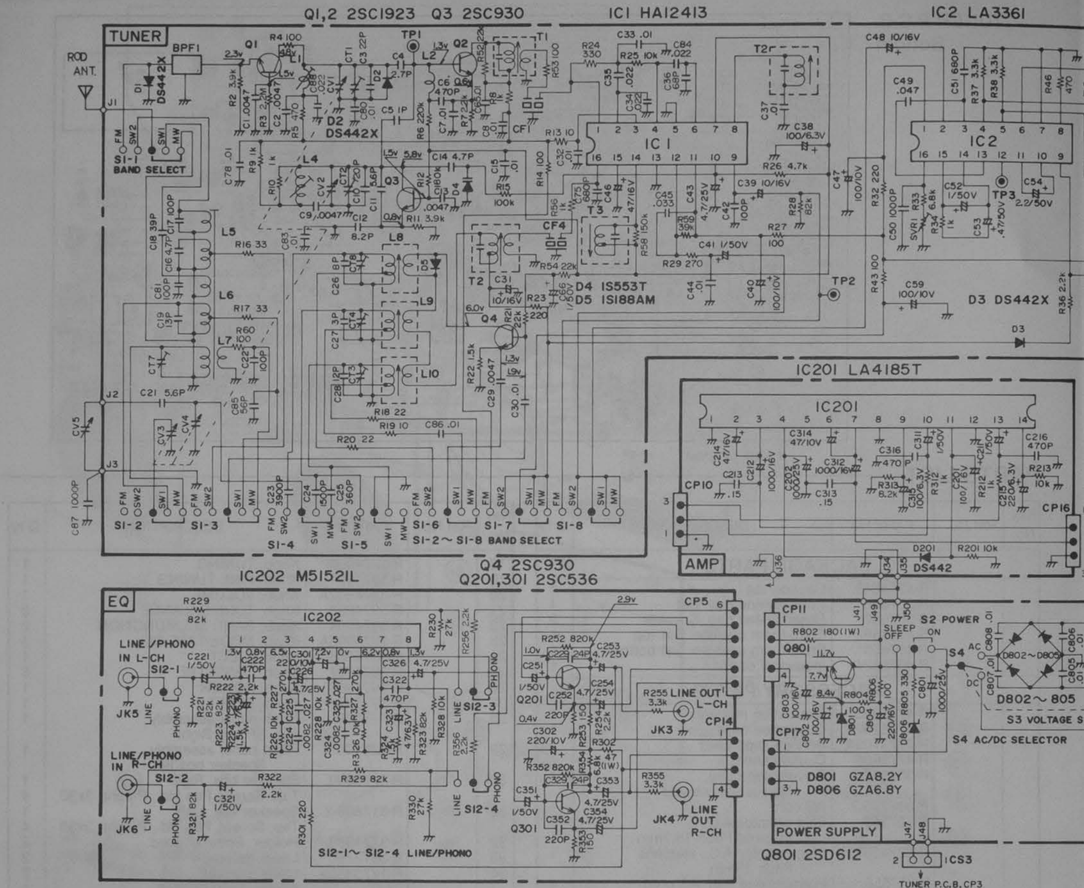
NOTES

1. ALL RESISTORS ARE 1/4W, UNLESS NOTED OTHERWISE VALUES ARE IN OHMS. (k=10³, M=10⁶)
2. ALL CAPACITOR VALUES ARE IN μF. (P=10⁻⁶μF)
3. VOLTAGE READINGS TO COMMON GROUND ARE MEASURED WITH V.T.V.M UNDER NO SIGNAL.
4. THIS SCHEMATIC DIAGRAM MIGHT BE MODIFIED WITH DEVELOPMENT OF TECHNOLOGY.

MAIN AMP P.C.B. Bottom



SCHEMATIC DIAGRAM

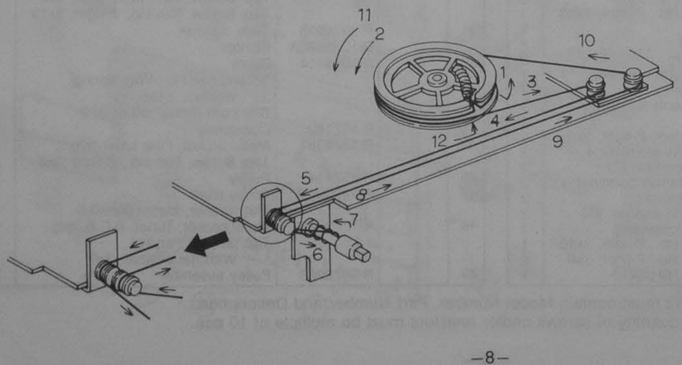


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC 1 (V)	(1.3) 1.9	(1.3) 1.9	(0) 6.1	(2.1) 1.9	0	1.3	2.1	2.1	(2.4) 2.2	2.2	6.7	(0.6) 0.4	0	2.1	0.3	0.9
IC 2 (V)	5.9	2.4	1.7	1.7	1.7	7.7	0	0.4	(3.1) 0.3	1.4	1.4	(0.1) 1.1	1.4	1.4	1.4	(0.1) 0.9
IC201(V)	0.9	11.6	5.9	12.0	0	11.6	5.9	0	0.6	0	9.8	0	0	0.6		

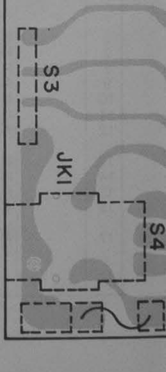
NOTES

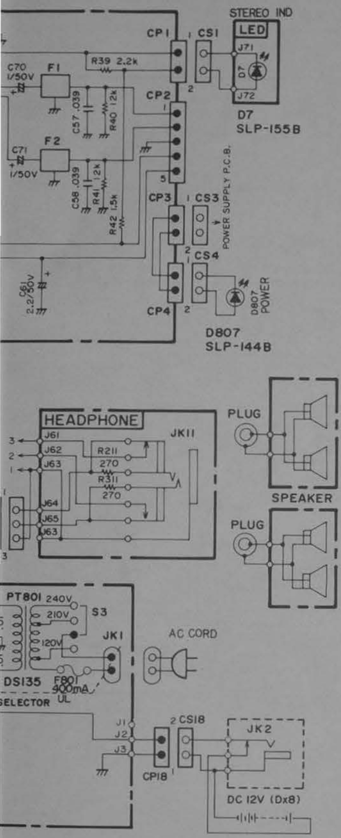
1. ALL RESISTORS ARE 1/4W,UNLESS NOTED OTHE
2. ALL CAPACITOR VALUES ARE IN μF.(p=$10^{-6}\mu$F)
3. VOLTAGE READINGS TO COMMON GROUND ARE
4. THIS SCHEMATIC DIAGRAM MIGHT BE MODIFIE

DIAL CORD STRINGING



Power supply P.C



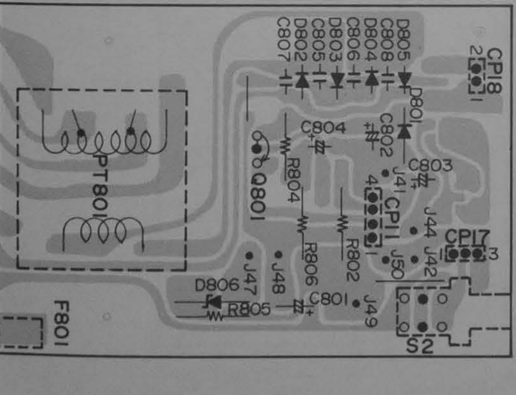


ERWISE. VALUES ARE IN OHMS. (k=10^3, M=10^6)

E MEASURED WITH V.T.V.M UNDER NO SIGNAL.

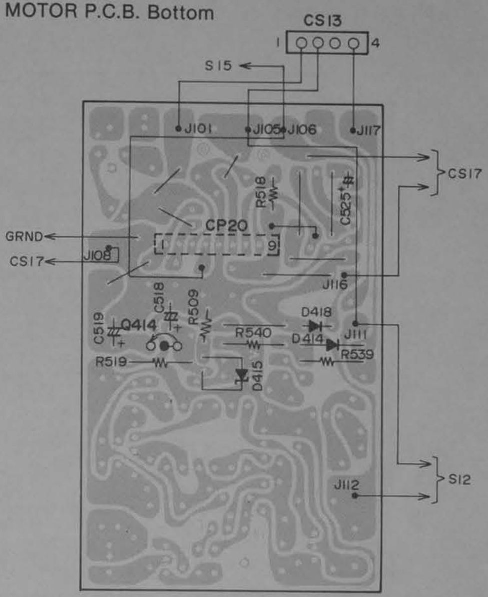
D WITH DEVELOPMENT OF TECHNOLOGY.

.B. Bottom

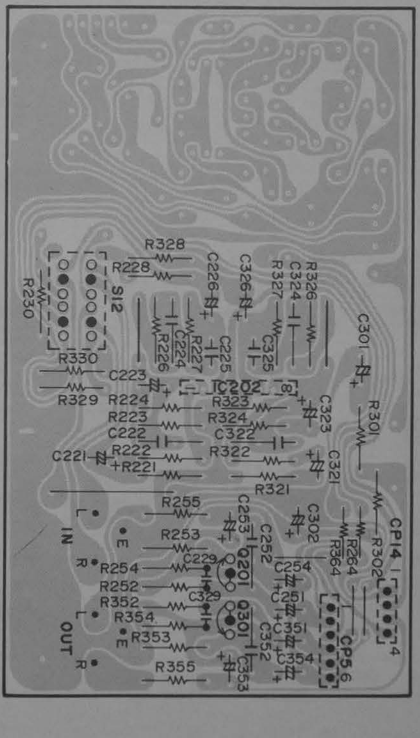


WIRING DIAGRAM

MOTOR P.C.B. Bottom

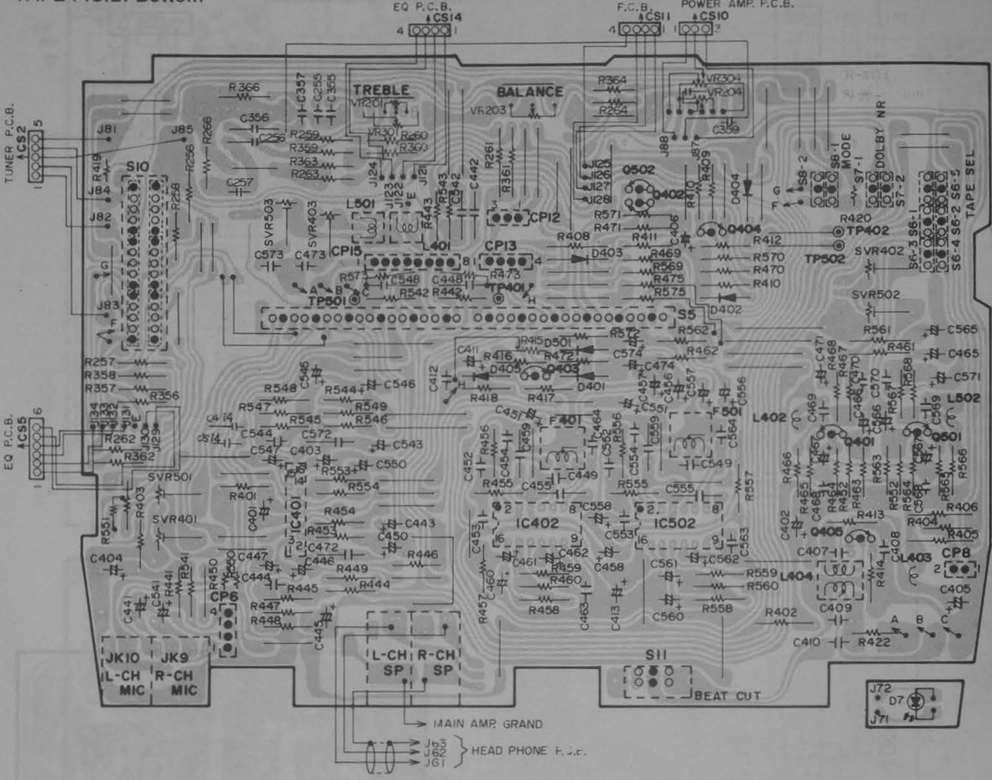


PRE AMP. P.C.B. Bottom

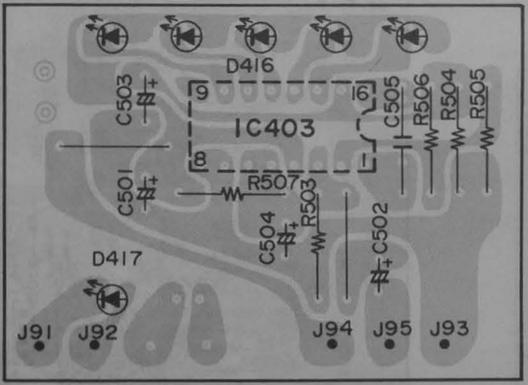


WIRING DIAGRAM

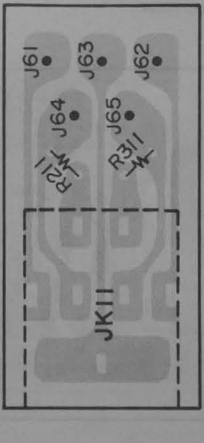
TAPE P.C.B. Bottom



LED P.C.B. Bottom

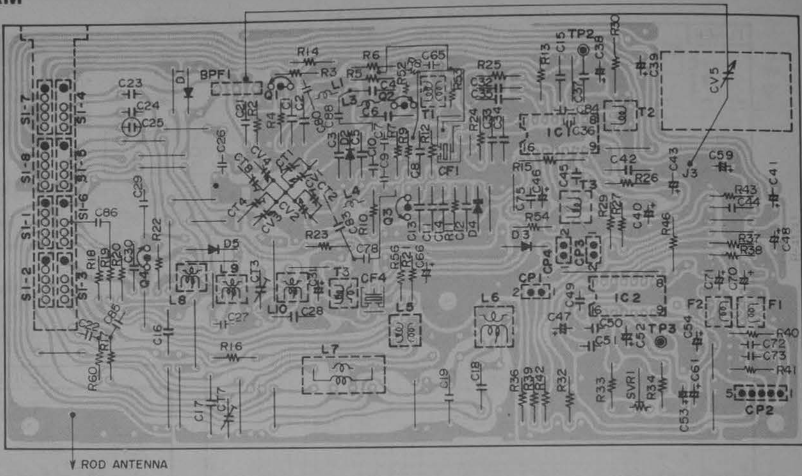


HEADPHONE P.C.B. Bottom



WIRING DIAGRAM

TUNER P.C.B.
Bottom



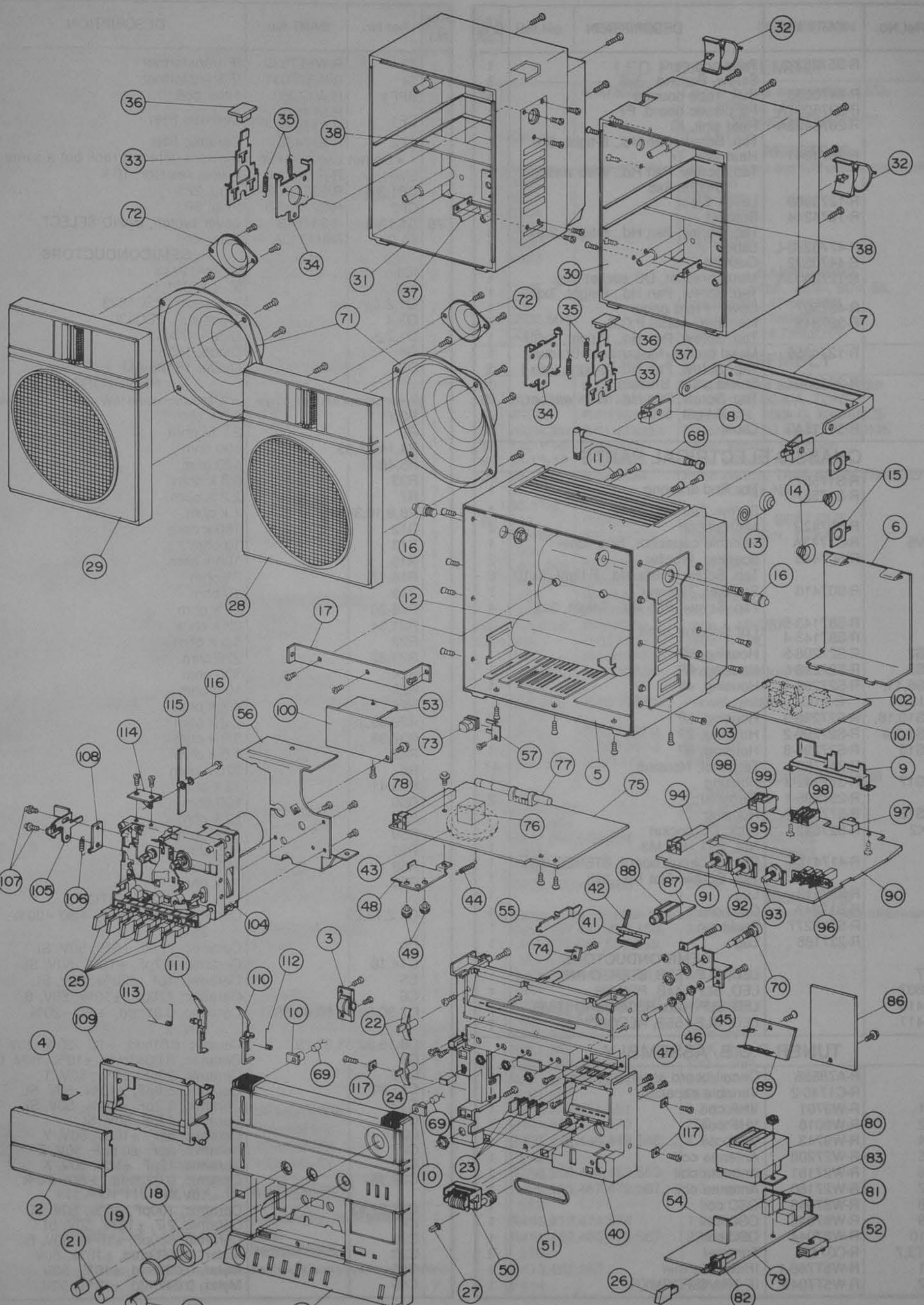
PARTS LIST

Key No.	Ref.No.	PART No.	DESCRIPTION	Q'ty
			PACKAGE PARTS	
		R-4776549	Caution tag	1
		R-357659	Polyethylene bag, Set	1
		R-357660	Polyethylene bag, Speaker	2
		R-4174562	Styro-foam cushion, Set top	1
		R-4174561	Styro-foam cushion, Set bottom	1
		R-4076524	Individual carton	1
			ACCESSORY PARTS	
		R-4776803	Instruction manual	1
		R-4776292	Guarantee card	1
		R-4773709A	Service shop card	1
		R-4775005	Caution sheet	1
		R-357562-1	Polyethylene bag, Instruction manual	1
		R-S37225-2	AC cord	1
		R-S27563	Plug adaptor A.C., England Pitch 16.7mm	1 1
		R-S27433-2	Plug adaptor A.C., siemens Pitch 19mm	1
		R-357556	Polyethylene bag, AC cord	1
		R-S07418	Magnetic tape, C-12	1
			CABINET APPEARANCE PARTS	
1		R-A78555	Panel assembly, Front	1
2		R-327595	Cassette lid	1
3		R-S872449	Dumper	1
			Tap. Screw, Pan Hd., P-tight, 3x8	2
4		R-1571492	Tortion spring	1
5		R-A78556	Rear cover assembly	1
			Tap. Screw, Flat Hd., 3x10	9
			Tap. Screw, Pan Hd., P-tight, 3x30	1
6		R-327599-P	Battery lid	1
7		R-S872689-P	Handle assembly	1
8		R-3974690	Hinge, Handle mtg.	2
9		R-1274036	Metal bracket, Earth terminal	1
10		R-4470642	Holder, Microphone	2
11		R-147169	Special screw, Earth terminal	1
12		R-327607-P	Battery case	1
			Tap. Screw, Pan Hd., P-tight, 3x8	2
13		R-1571052A	Coil spring, Battery terminal +,−	1
14		R-1571526	Spring, Battery terminal −	2
15		R-237214	Terminal plate, Battery terminal +	2
16		R-2470192A	Shaft, Speaker box mtg.	2
			Nut, Hex Hd., With washer, M8	2
17		R-1273985	Bracket, Battery case mtg.	1
			Tap. Screw, Pan Hd., P-tight, 3x10	1
			Tap. Screw, Pan Hd., P-tight, 3x8	2
			Tap. Screw, Flat Hd., 3x10	1

Key No.	Ref.No.	PART No.	DESCRIPTION	Q'ty
18		R-3974900	Knob, TUNING	1
19		R-3974901	Knob, FINE TUNING	1
20		R-3974902A	Knob, VOLUME	1
21		R-3974903	Knob, TONE/BALANCE	2
22		R-3974904	Knob, BAND SEL/FUNCTION	2
23		R-3974905A	Knob, MODE/TAPE SEL	3
24		R-3974906	Knob, EJECT	1
25		R-3974907	Knob, CASSETTE	6
26		R-3974909	Knob, POWER	1
27		R-3973827	Knob, RESET	1
28		R-A78099	Front panel assembly, SP box Right	1
29		R-A78100	Front panel assembly, Speaker box left	1
30		R-317809-L	Speaker box, Right	1
			Tap. Screw, Pan Hd., P-tight, 3x30	4
31		R-317809-2	Speaker box, Left	1
			Tap. Screw, Pan Hd., P-tight, 3x30	4
32		R-377138-L	Holder, Speaker cord	2
33		R-S872760	Lever assembly	2
34		R-1273865A	Metal bracket	2
			Screw, Flat Hd., 3x8	6
35		R-1571490	Spring, Metal bracket-Lever	4
36		R-327600-P	Knob	2
37		R-1274023	Metal bracket	2
			Screw, Flat Hd., 3x8	4
38		R-467350	Reinforcement, SP box	2
			CHASSIS MECHANICAL PARTS	
40		R-A78557	Chassis assembly, Center	1
			Tap. Screw, Pan Hd., P-tight, 3x8	2
			Tap. Screw, Pan Hd., P-tight, 3x10	5
41		R-3974913	Slide, Pointer	1
42		R-1273870A	Pointer	1
43		R-3974914	Drum	1
			Screw, Pan Hd., With spring washer, 2.6x6	1
			Dial cord String, ø0.5x 372	1
44		R-157189	Coil spring	1
45		R-1274353	Metal brcket, Fine tuner mtg.	1
			Tap. Screw, Flat Hd., B-tight, 3x8	2
46		R-357414	Pulley	2
47		R-147054-3	Pulley shaft	1
			Flat washer, Metal, 3x8x0.5	1
48		R-1273873	Metal brcket, Tuner, P.C.B. mtg.	1
			Tap. Screw, Pan Hd., With flat washer, 3x8	1
49		R-S872360	Pulley assembly	2

NOTES : 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

EXPLODED VIEW (CABINET & CHASSIS)



PARTS LIST(CONTINUED)

Key No.	Ref.No.	PART No.	DESCRIPTION	Q'ty
50		R-S57252-2	Tape counter	1
			Screw, Pan Hd., 3x6	3
51		R-4470033	Belt, Tape counter	1
52		R-3975007A	Fix plastic board, PT	1
53		R-2673422A	Heat sink, IC	1
			Tap. Screw, Pan Hd., B-tight, 3x6	1
54		R-2671941	Heat sink, Tr	1
			Tap. Screw, Pan Hd., With washer, B-tight, 3x8	1
55		R-1273989	Lever, Eject	1
56		R-1274244	Bracket	1
			Tap. Screw, Pan Hd., S-tight, 2.6x4	3
		R-4776288-L	Label	1
		R-4470592	Cushion	1
57		R-1273863A	Metal bracket, DC socket mtg.	1
			Tap. Screw, Pan Hd., P-tight, 3x8	1
		R-437507	Cover, Front panel	1
		R-367343	Insulator, AMSS P.C.B.	1
			Tap. Screw, Pan Hd., P-tight, 3x30	1
65		R-1274356	Metal brcket, Mecanism∿Bracket	1
			Tap. Screw, Pan Hd., S-tight, 2.6x4	3
		R-2673607	Shield plate, Bracket	1
			Tap. Screw, Pan Hd., With washer, B-tight, 3x6	2
		R-3971540	Label	1
			CHASSIS ELECTRICAL PARTS	
68		R-S17557 R-S17557-1	} or Rod antenna	1
			Screw, Flat Hd., 3x12	1
69		R-S07429	Microphone	2
70	CV5	R-C1743A	Variable capacitor, Fine tuner	1
71		R-S07443	Speaker, Woofer	2
			Tap. Screw, Truss Hd., P-tight, 3x10	8
72		R-S07416	Speaker, Tweeter	2
			Tap. Screw, Pan Hd., P-tight, 3x8	4
		R-S87143-5 R-S87143-4	} or Speaker cord	2
	CS2	R-S27298-5	Housing, 5P	1
	CS5	R-S27298-6	Housing, 6P	1
	CS6,11,13,14	R-S27298-4	Housing, 4P	4
	CS10,16,	R-S27298-3	Housing, 3P	2
	CS1,3,4	R-S27298-2	Housing, 2P	3
	CS15	R-S27298-8	Housing, 8P	1
		R-247755	Terminal, Housing	47
	CS17	R-377142-3	Housing	1
		R-257295-1	Terminal	2
	CS18	R-377088-2	Housing	1
73	JK2	R-S27643	Jack, DC socket	1
			Nut, Hex Hd., M3	1
74		R-4174154	Printed circuit board, STEREO IND.	1
			Tap. Screw, Flat Hd., 3x8	1
		R-237113	Lug	1
		R-S17243	Cord clip	4
		R-S257277	Sockt pin	1
		R-237188	Lug	1
			SEMICONDUCTORS	
	D7		LED, SLP-155B, STEREO IND.	1
	D807		LED, SLP-144B, POWER	1
	D416		LED, SLP-166B, REC/SOUND LEVEL	1
	D417		LED, SLP-155B, RECORD	1
			TUNER P.C.B. ASSEMBLY	
75		R-A78558	Circuit board assembly, Tuner	1
76		R-C1740-2	Variable capacitor	1
	L1	R-W9701	VHF coil	1
	L2	R-W9018	VHF coil	1
	L4	R-W9743	VHF coil	1
	L5	R-W27208	Antenna coil	1
	L6	R-W27181	Antenna coil	1
77	L7	R-W27180	Antenna coil	1
	L8	R-W87046	OSC coil	1
	L9	R-W87045	OSC coil	1
	L10	R-W87044	OSC coil	1
	CT3,7	R-C0740	Trimmer	2
	T1	R-W5T766-1	IF transformer	1
	T2	R-W5T7045	IF TRANSFORMER	1
	T3	R-W5T7030	IF transformer	1
	T4	R-W5T7031	IF transformer	1
	BPF1	R-W17080	Filter coil	1
	CF1	R-S17574 R-S17532 }or	Ceramic filter	2
	CF4	R-S17486	Ceramic filter	1
	*Do not use ceramic filter from different rank but a same rank.			
	SVR1	R-R110724	Preset resistor, 10 k	1
	CP1,3,4	R-S27207-2	Plug, 2P	3
	CP2	R-S27207-5	Plug, 5P	1
78	S1-1∿8	R-S47833	Lever switch, BAND SELECT	1
	F1,2	R-M1710A	Filter coil	2
			SEMICONDUCTORS	
	IC1		IC, HA12413	1
	IC2		IC, LA3361	1
	Q1,2		Transistor, 2SC1923	2
	Q3,4		Transistor, 2SC930	2
	D1,2,3		Diode, DS442	3
	D4		Diode, 1S553	1
	D5		Diode, 1S188 AM	1
			RESISTORS	
	(Resistors are of carbon type, ±5% allowance and $^{1}/_{4}$W unless otherwise noted.)			
	R2,11		3.9 k ohm	2
	R3		2.2 M ohm	1
	R4,14,27,43		100 ohm	4
	R5,46		470 ohm	2
	R33		6.8 k ohm	1
	R7		2.2 K ohm	1
	R8,9,10,34,56		1 k ohm	5
	R12		180 k ohm	1
	R13		10 ohm	1
	R15		100 k ohm	1
	R16,17		33 ohm	2
	R19		10 ohm	1
	R18,20		22 k ohm	2
	R21,54		22 k ohm	2
	R22		1.5 k ohm	1
	R23,32		220 ohm	2
	R24		330 ohm	1
	R25		10 k ohm	1
	R26		4.7 k ohm	1
	R29,36,39		2.2 k ohm	3
	R37,38		3.3 k ohm	2
	R42		1.5 k ohm	1
	R6		220 k ohm	1
	R40,41		12 k ohm	2
	R60		100 ohm	1
	R52		22 k ohm	1
	R59		39 k ohm	1
	R53		100 ohm	1
	R58		150 k ohm	1
	R28		15 k ohm	1
			CAPACITORS	
	C1,2,13,29		Ceramic, 0.0047mfd, +80 −20%, 25V, X	4
	C3		Ceramic, 22pF, ±5%, 50V, SL	1
	C14,16		Ceramic, 4.7pF, ±10%, 50V, SL	2
	C5		Ceramic, 1pF, ±20%, 50V, SL	1
	C6		Ceramic, 470pF, ±10%, 50V, B	1
	C7,30,65,78,80,83,86		Ceramic, 0.01mfd, +80 −20%, 50V, Z	7
	C8,15,32,33,37,79		Ceramic, 0.01mfd, +80 −20%, 16V, X	6
	C9		Ceramic, 0.0047mfd, ±10%, 50V, B	1
	C10		Ceramic, 20pF, ±5%, 50V, T	1
	C11,21		Ceramic, 5.6pF, ±10%, 50V, SL	2
	C12		Ceramic, 8.2pF, ±10%, 50V, SL	1
	C19		Ceramic, 13pF, 50V, SL	1
	C26		Ceramic, 8pF, ±10%, 50V, Y	1
	C27		Ceramic, 3pF, ±0.5pF, 50V, Z	1
	C28		Ceramic, 12pF, ±5%, 50V, X	1
	C34,35		Ceramic, 0.022mfd, +80 −20%, 16V,X	2
	C17,22,42		Ceramic, 100pF, ±5%, 50V, SL	3
	C4		Ceramic, 2.7, ±10%, 50V, SL	1
	C75		Ceramic, 680pF, ±10%, 50V, B	1
	C23		Mylar, 0.0039mfd, ±10%, 50V	1
	C45		Mylar, 0.033mfd, ±10%, 50V	1
	C49		Mylar, 0.047mfd, ±10%, 50V	1

NOTES : 1. Part orders must contain Model Number, Part Number and Description.
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PARTS LIST (CONTINUED)

Key No.	Ref.No.	PART No.	DESCRIPTION	Q'ty
	C18		Ceramic, 39pF, ±5%, 50V, SL	1
	C24		Mular, 0.0015mfd, ±10%, 50V	1
	C31,39,46,48		Electrolytic, 10mfd/16V	4
	C40,47,59		Electrolytic, 100mfd/10V	3
	C41,52,55,56,66		Electrolytic, 1mfd/50V	5
	C38		Electrolytic, 100mfd/6.3V	1
	C43		Electrolytic, 4.7mfd/25V	1
	C85		Ceramic, 56pF, ±5%, 50V, SL	1
	C84,88		Ceramic, 0.022mfd, +80 −20%, 50V, Z	2
	C87		Ceramic, 0.001mfd, ±10%, 50V, B	1
	C36		Ceramic, 68 pF, ±5%, 50V	1
	C44		SBL ceramic, 0.01mfd, ±10%, 25V	1
	C57,58		SBL ceramic, 0.039mfd, ±10%, 25V	2
	C50		Ceramic, 0.001mfd, ±5%, 50V, SA	1
	C51		Ceramic, 680pF, ±5%, 50V, SA	1
	C53		Electrolytic, 0.47Mfd/50V	1
	C54,61		Electrolytic, 2.2mfd/50V	2
POWER SUPPLY P.C.B. ASSEMBLY				
79		R-A78559	Circuit board assembly, Power supply	1
80	PT801 ⚠	R-W770229	Power transformer	1
81	JK1,S4 ⚠	R-S27640	Socket	1
82	S2 ⚠	R-S47832	Push switch	1
83	S3 ⚠	R-S47860	Rotary switch	1
	CP11	R-S27207-4	Plug, 4P	1
	CP17	R-S27634-3	Plug, 3P	1
	CP18	R-377089-2	Housing, 2P	1
		R-257236-1	Terminal, Housing	2
		R-257277	Socket pin	1
	F801 ⚠	R-S17446-1	Fuse, 400mA	1
	⚠	R-237030	Fuse clip	2
			SEMICONDUCTORS	
	Q801	⚠	Transistor, 2SD612	1
	D801		Zener diode, GZA8.2Y	1
	D802∼805	⚠	Diode, DS135D	4
	D806		Zener diode, GZA6.8Y	1
			RESISTORS	
	(Resistors are of carbon type ±5% allowance and $^1/_4$W unless otherwise nothed.)			
	R804,806		100 ohm	2
	R805		Solid, 330ohm, ±10%, $^1/_2$W	1
	R802		Metal oxide film, 180ohm, ±5%, 1W	1
			CAPACITORS	
	C805∼808		Ceramic, 0.02mfd, +80 −20%, 50V, Z	4
	C801		Electrolytic, 1000mfd/25V	1
	C802,803		Electrolytic, 100mfd/16V	2
	C804		Electrolytic, 220mfd/16V	1
MOTOR P.C.B. ASSEMBLY				
86		R-A78560	Circuit board assembly, Motor	1
		R-237113	Lug	1
			SEMICONDUCTORS	
	Q414		Transistor, 2SD863	1
	D414		Diode, DS442	1
	D418		Diode, DS135D	1
	D415		Zener diode, GZA12Z	1
			RESISTORS	
	(Resistors are of carbon type ±5% allowance and $^1/_4$W unless otherwise noted.)			
	R509		22 ohm	1
	R519		100 ohm	1
	R539		22 k ohm	1
	R540		10 k ohm	1
			CAPACITORS	
	C519		Electrolytic, 220mfd/16V	1
	C518		Electrolytic, 100mfd/16V	1
	C552		Electrolytic, 100mfd/25V	1
HEADPHONE P.C.B. ASSEMBLY				
87		R-A78505	Circuit board assembly, Headphone	1
88	JK11	R-S27438-1	Headphone jack	1
			RESISTORS	
	(Resistors are of carbon type ±5% allowance and $^1/_4$W unless otherwise noted.)			
	R211,311		270 ohm	2

Key No.	Ref.No.	PART No.	DESCRIPTION	Q'ty
LED P.C.B. ASSEMBLY				
89		R-A78507	Circuit board asssembly, LED, Without LED	1
			SEMICONDUCTORS	
	IC403		IC, LB1415	1
			RESISTORS	
	(Resistors are of carbon thpe, ±5% allowance and $^1/_4$W unless otherwise noted.)			
	R501		1 k ohm	1
	R503		10 k ohm	1
	R504		15 k ohm	1
	R505		2.7 k ohm	1
	R506		100 k ohm	1
	R507		560 ohm	1
			CAPACITORS	
	C505		Ceramic, 51pF, ±5%, 50V, SL	1
	C501		Electrolytic, 47mfd/16V	1
	C502,504		Electrolytic, 1mfd/50V	2
	C503		Electrolytic, 4.7mfd/25V	1
TAPE P.C.B. ASSEMBLY				
90		R-A78506	Circuit board assembly, Tape	1
91	VR202,302	R-R1167416	Rotary VR, 50 k-A, TONE	2
92	VR203	R-R1167417	Rotary VR, 100k-G, BALANCE	1
93	VR204,304	R-R1167433-1	Rotary VR, 50 k-Ax2, VOLUME	1
94	S10-1∼5	R-S47837	Lever switch, Function	1
95	S5-1∼12	R-S47835	Slide switch, REC/PLAY	1
96	S6-1∼5 S7 } S8-1∼2	R-S47834	Push switch, TAPE SELECT/MODE/ DOLBY NR	1
97	S11	R-S47581-3	Slide switch, BEAT CUT	1
	SVR401, 501	R-R110724	Preset resistor, 10 k-B	2
	L401,501	R-W17070	Trap coil	2
	L402,502	R-W67029	Choke coil	2
	L403	R-W17020A	Choke coil	1
	L404	R-W87061	OSC coil	1
98	JK7,8,10	R-S27290-1	Jack, L-MIC/SP	3
99	JK9	R-S27289-1	Jack, R-MIC	1
	CP12	R-S27207-3	Plug, 3P	1
	SVR402, 502	R-R110705	Preset resistor, 50 k-B	2
	SVR403, 503	R-R110723	Preset resistor, 100 k-B	2
	CP15	R-S27207-8	Plug, 8P	1
	CP6,13	R-S27207-4	Plug, 4P	2
	F401,501	R-M1719	Filter coil	2
			SEMICONDUCTORS	
	IC401		IC, M51542L	1
	IC402,502		IC, LM1111C	2
	Q401,501		Transistor, 2SC536	2
	Q402,502,503,504		Transistor, 2SC536	4
	Q405		Transistor, 2SD863	1
	D401,501		Diode, 1S188 AM	2
	D402,403,404,405		Diode, DS442	4
			RESISTORS	
	(Resistors are of carbon type ±5% allowance and $^1/_4$W unless otherwise noted.)			
	R257,357,444,450,455, 461,471,544,550,555, 561,571		3.3 k ohm	12
	R258,358,441,468,541, 568		2.2 k ohm	6
	R259,359,408,410,416, 420,443,543		10 k ohm	8
	R260,360		15 k ohm	2
	R261,361		82 K ohm	2
	R262,362,452,552		100 k ohm	4
	R263,363,464,564		6.8 k ohm	4
	R264,364		560 ohm	2
	R266,366,451,551		8.2 k ohm	4
	R401,402,470,570		220 ohm	4
	R403,419,446,449,546, 549		4.7 k ohm	6
	R256,356,404,453,553		1.5 k ohm	5
	R407,415,467,472,567, 572		2.7 k ohm	6
	R409,412,474,574		1 k ohm	4
	R411,422,463,475,563, 575		22 k ohm	6
	R413,462,562		1.8 k ohm	3
	R414		2.2 ohm	1

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PARTS LIST (CONTINUED)

Key No.	Ref.No.	PART No.	DESCRIPTION	Q'ty
	R418		4.7 M ohm	1
	R421		47 ohm	1
	R442,542		10 ohm	2
	R445,545		220 k ohm	2
	R447,547		390 ohm	2
	R448,548		68 k ohm	2
	R454,554		3.9 k ohm	2
	R267,367,456,473,556, 573		47 k ohm	6
	R457,557		56 k ohm	2
	R458,558		270 k ohm	2
	R459,559		150 k ohm	2
	R460,560		330 k ohm	2
	R465,565		1.2 k ohm	2
	R466,566		150 ohm	2
	R469,569		39 k ohm	2
	R406		Solid, 82 ohm, ±10%, $^{1}/_{2}$W	1
	R405		Metal oxide film, 27 ohm, ±5%, 2W	1
			CAPACITORS	
	C256,356		Ceramic, 470pF, ±10%, 25V, B	2
	C259,359		Ceramic, 390pF, ±5%, 50V, SL	2
	C410		Ceramic, 270pF, ±10%, 500V, B	2
	C442,542		Ceramic, 0.0012mfd, ±10%, 50V, B	2
	C448,472,548,572		Ceramic, 470pF, ±10%, 50V, B	4
	C449,549		Ceramic, 150pF, ±10%, 50V, B	2
	C455,459,464,468,555, 559,564,568		Ceramic, 0.001mfd, ±10%, 50V, B	8
	C473,573		Ceramic, 560pF, ±10%, 50V, B	2
	C407		Mylar, 0.022mfd, ±20%, 50V	1
	C408		Mylar, 0.039mfd, ±20%, 50V	1
	C409		Mylar, 0.0027mfd, ±20%, 100V	1
	C444,544		Mylar, 0.015mfd, ±5%, 50V	2
	C452,552		Mylar, 0.0047mfd, ±5%, 50V	2
	C453,553		Mylar, 0.033mfd, ±5%, 50V	2
	C454,554		Mylar, 0.0039mfd, ±5%, 50V	2
	C463,563		Mylar, 0.047mfd, ±5%, 50V	2
	C469,569		Mylar, 0.012mfd, ±5%, 50V	2
	C255,355		SBL ceramic, 0.022mfd, ±10%, 50V	2
	C257,357,441,541		SBL ceramic, 0.047mfd, ±10%, 25V	4
	C412		SBL ceramic, 0.068mfd, ±10%, 25V	1
	C470,570		SBL ceramic, 0.015mfd, ±10%, 25V	2
	C474,574		SBL ceramic, 0.001mfd, ±10%, 25V	2
	C401,413,458		Electrolytic, 220mfd/10V	3
	C403		Electrolytic, 47mfd/10V	1
	C404		Electrolytic, 100mfd/10V	1
	C405		Electrolytic, 47mfd/16V	1
	C406,411		Electrolytic, 220mfd/6.3V	2
	C443,543		Electrolytic, 10mfd/50V	2
	C445,545		Electrolytic, 100mfd/6.3V	2
	C446,456,457,462,471, 546,556,557,562,571		Electrolytic, 10mfd/16V	10
	C447,547		Electrolytic, 4.7mfd/25V	2
	C450,550		Electrolytic, 47mfd/6.3V	2
	C451,466,467,475,551, 566,567,575		Electrolytic, 1mfd/50V	8
	C460,560		Electrolytic, 0.33mfd/50V	2
	C461,561		Electrolytic, 0.1mfd/50V	2
	C465,565		Electrolytic, 0.47mfd/50V	2
			MAIN AMP. P.C.B. ASSEMBLY	
100		R-A78213	Circuit board assembly, Main amp.	1
	CP10,16	R-S27207-3	Plug, 3P	2
		R-257277	Socket pin	2
			SEMICONDUCTORS	
	IC201		IC, LA4185T	1
	D201		Diiode, DS442	1
			RESISTORS	
	(Resistors are of carbon type ±5% allowance and $^{1}/_{4}$W unless otherwise noted.)			
	R201		10 k ohm	1
	R212,312		1 k ohm	2
	R213,313		8.2 k ohm	2
			CAPACITORS	
	C216,316		Ceramic, 470pF, ±10%, 50V, B	2
	C213,313		Mylar, 0.15mfd, ±20%, 50V	2
	C201		Electrolytic, 100mfd/16V	1
	C202		Electrolytic, 1000mfd/25V	1
	C211,311		Electrolytic, 1mfd/50V	2
	C212,312		Electrolytic, 1000mfd/16V	2
	C214,314		Electrolytic, 47mfd/16V	2
	C215,315		Electrolytic, 220mfd/6.3V	2

NOTES:
1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

Key No.	Ref.No.	PART No.	DESCRIPTION	Q'ty
			EQ P.C.B. ASSEMBLY	
101		R-A78214	Circuit board assembly, EQ	1
102	S12-1〜4	R-S47836	Slide switch, LINE/PHONO	1
103	JK3〜6	R-S17514	Jack, 4P, LINE OUT/LINE-PHONO	1
	CP5	R-S27207-6	Plug, 6P	1
	CP14	R-S27207-4	Plug, 4P	1
			SEMICONDUCTORS	
	IC202		IC, M51521L	1
	Q201,301		Transistor, 2SC536	2
			RESISTORS	
	(Resistors are of carbon type ±5% allowance and $^{1}/_{4}$W unless otherwise noted.)			
	R221,223,321,323		82 k ohm	4
	R222,254,256,322,354, 356		2.2 k ohm	6
	R230,330		27 k ohm	2
	R224,324		1.5 k ohm	2
	R252,352		820 k ohm	2
	R226,228,326,328		10 k ohm	4
	R227,327		270 k ohm	2
	R229,329		82 k ohm	2
	R301		220 ohm	1
	R302		47 ohm	1
	R253,353		150 ohm	2
	R255,355		3.3 k ohm	2
			CAPACITORS	
	C222,322		Ceramic, 470pF, ±10%, 50V, B	2
	C224,324		Ceramic, 0.0082mfd, ±10%, 25V, X	2
	C225,325		SBL ceramic, 0.027mfd, ±10%, 25V	2
	C221,251,321,351		Electrolytic, 1mfd/50V	4
	C223,323		Electrolytic, 47mfd/6.3V	2
	C301,302		Electrolytic, 220mfd/10V	2
	C253,254,353,354		Electrolytic, 4.7mfd/25V	4
	C229,329		Ceramic, 24pF, ±5%, 50V, SL	2
	C252,352		Ceramic, 220pF, ±10%, 50V, B	2
	C226,326		Electrolytic, 4.7mfd/50V	2
			CASSETTE MECHANISM	
104		R-S97106	Cassette mechanism assembly	1
105		R-A78104	Lever assembly, Eject	1
106		R-1571331	Spring, Eject lever	1
107		R-1571654	Special screw, Eject lever	2
108		R-1273988	Bracket, Eject lever	1
109		R-327574-Q	Case, Cassette	1
110		R-3974736-Q	Lever, Case right	1
111		R-3974747-Q	Lever, Case lift	1
112		R-1571333	Tortion spring, Case right	1
113		R-1571334	Tortion spring, Case left	1
114		R-1273874	Bracket	1
			Tap. Screw, Pan Hd., S-tight, 2.6x6	2
115		R-137179	Plate spring	1
116		R-147166	Special screw	1
117		R-1273987	Special washer	3
			Tap. Screw, Pan Hd., S-tight, 2.6x6	3

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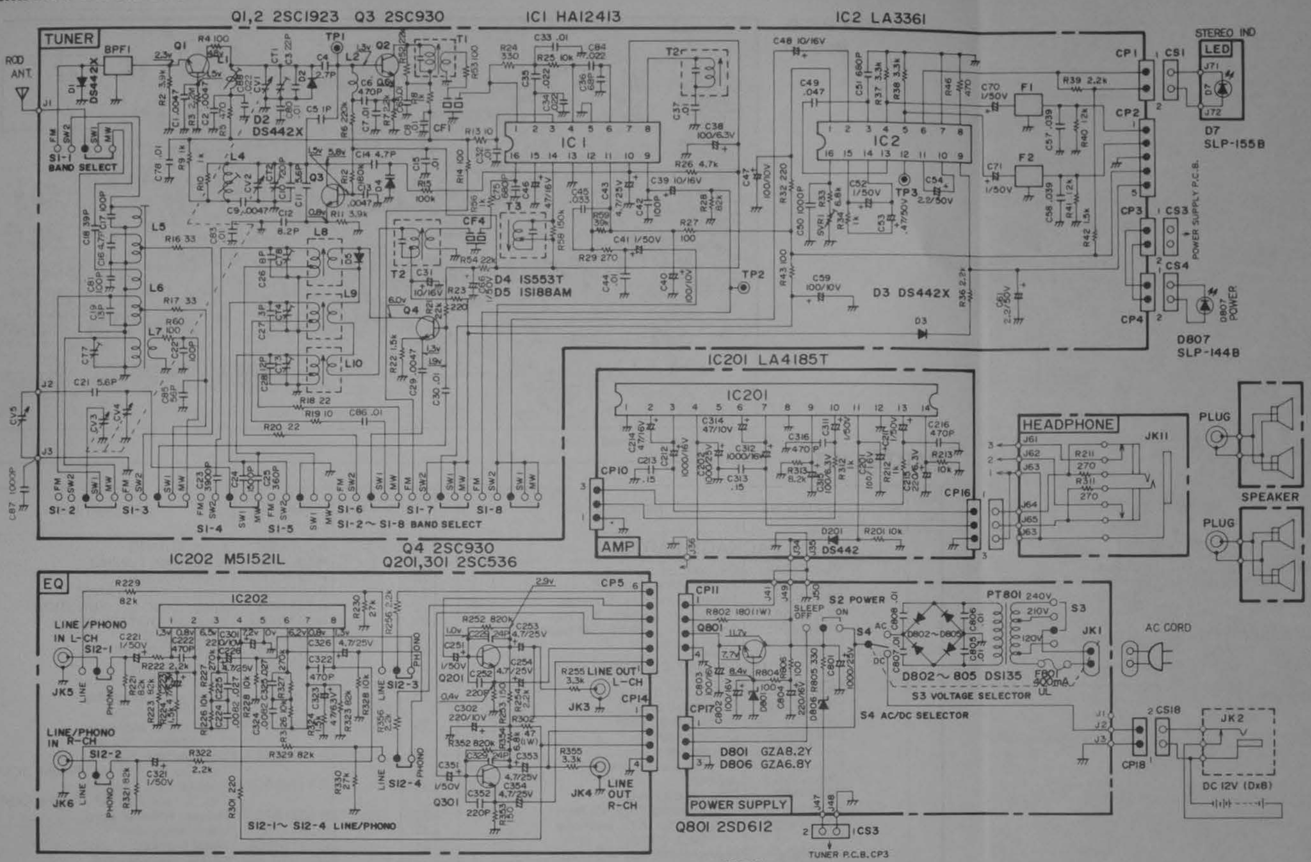
SCHEMATIC DIAGRAM

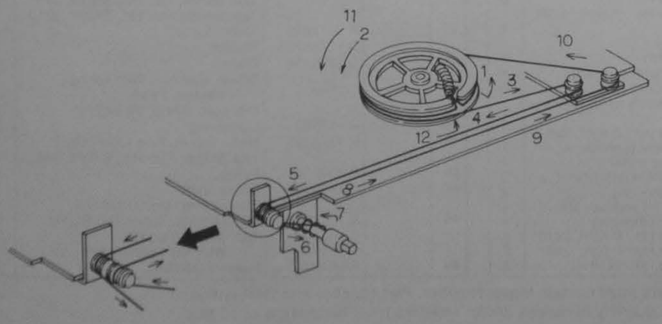


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC 1 (V)	(1.3) 1.9	(1.3) 1.9	(0) 6.1	(2.1) 1.9	0	1.3	2.1	2.1	(2.4) 2.2	2.2	6.7	(0.6) 0.4	0	2.1	0.3	0.9
IC 2 (V)	5.9	2.4	1.7	1.7	1.7	7.7	0	0.4	(3.1) 0.3	1.4	1.4	(0.1) 1.1	1.4	1.4	1.4	(0.1) 0.9
IC 201 (V)	0.9	11.6	5.9	12.0	0	11.6	5.9	0	0.6	0	9.8	0	0	0.6		

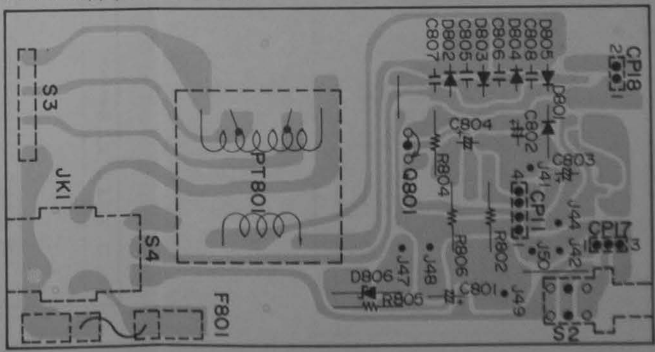
NOTES

1. ALL RESISTORS ARE 1/4W,UNLESS NOTED OTHERWISE. VALUES ARE IN OHMS.(k=10^3, M=10^6)
2. ALL CAPACITOR VALUES ARE IN μF.(p=10^{-6}μF)
3. VOLTAGE READINGS TO COMMON GROUND ARE MEASURED WITH V.T.V.M UNDER NO SIGNAL.
4. THIS SCHEMATIC DIAGRAM MIGHT BE MODIFIED WITH DEVELOPMENT OF TECHNOLOGY.

DIAL CORD STRINGING

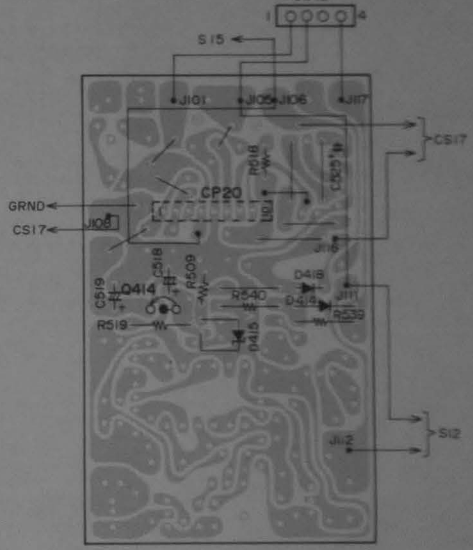


Power supply P.C.B. Bottom

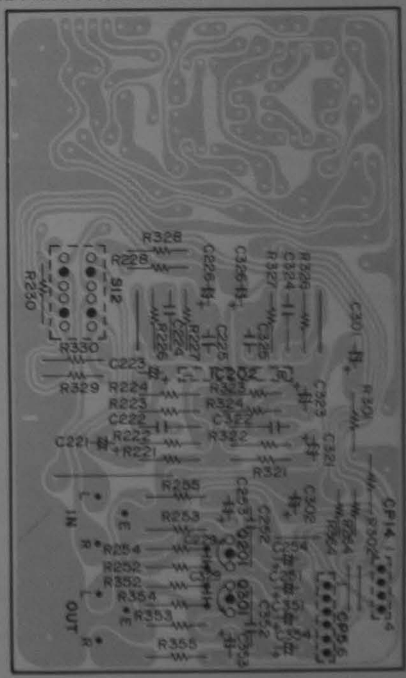


WIRING DIAGRAM

MOTOR P.C.B. Bottom



PRE AMP. P.C.B. Bottom



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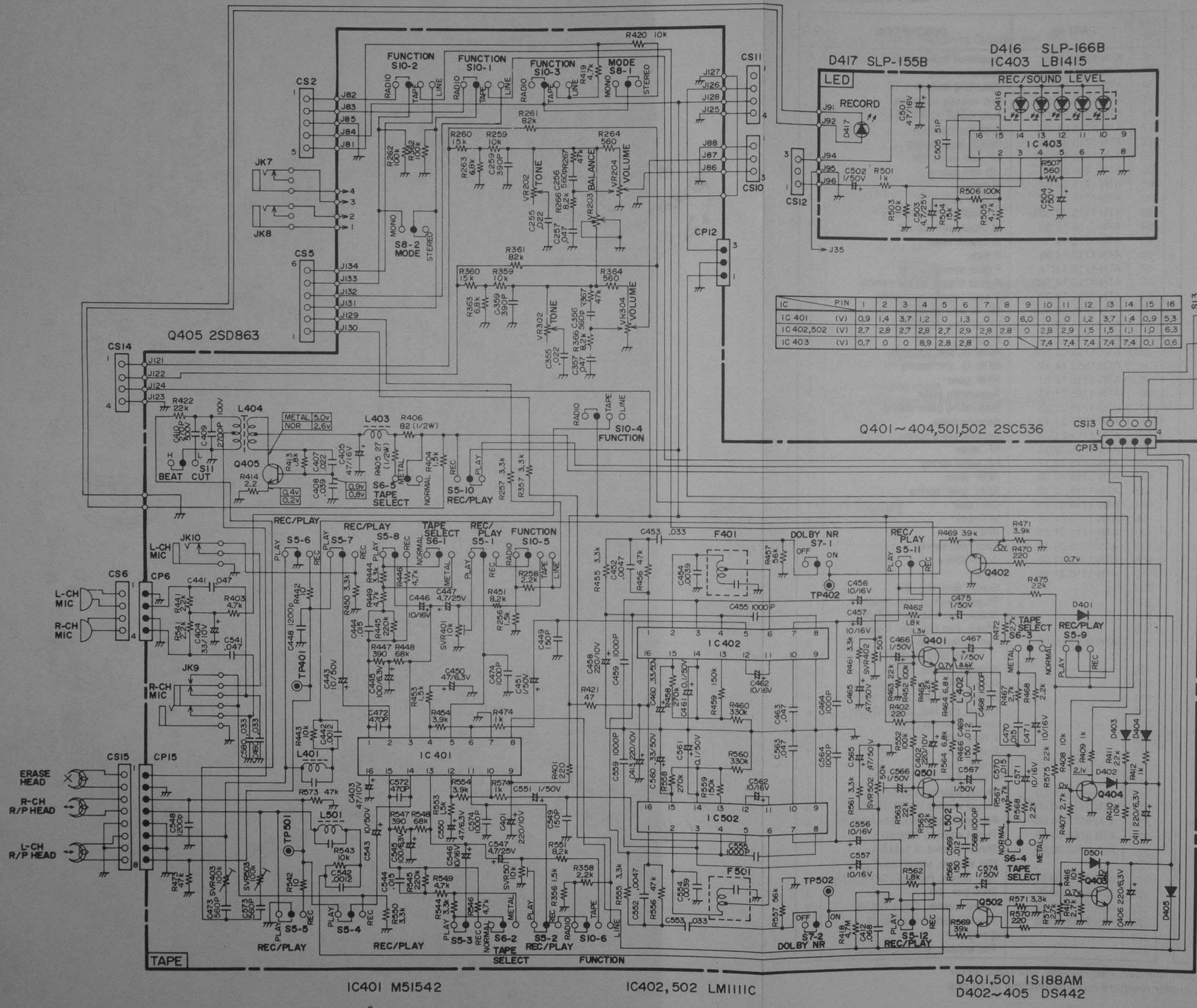


D417 SLP-155B

D416 SLP-166B
IC403 LB1415

Q405 2SD863

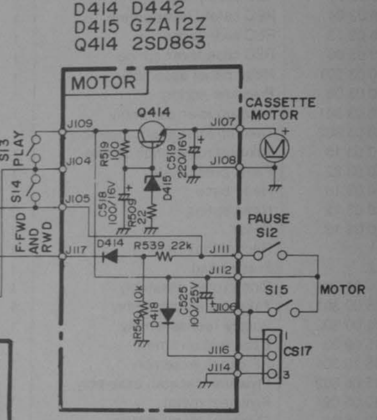
Q401~404,501,502 2SC536

IC401 M51542

IC402,502 LM1111C

D401,501 1S188AM
D402~405 DS442

IC	PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC 401	(V)	0.9	1.4	3.7	1.2	0	1.3	0	0	6.0	0	0	1.2	3.7	1.4	0.9	5.3
IC 402,502	(V)	2.7	2.8	2.7	2.8	2.7	2.9	2.8	2.8	0	2.8	2.9	1.5	1.5	1.1	1.0	6.3
IC 403	(V)	0.7	0	0	8.9	2.8	2.8	0	0		7.4	7.4	7.4	7.4	7.4	0.1	0.6



D418 DS135
D414 D442
D415 GZA12Z
Q414 2SD863

NOTES

1. ALL RESISTORS ARE 1/4W, UNLESS NOTED OTHERWISE VALUES ARE IN OHMS. ($k=10^3$, $M=10^6$)
2. ALL CAPACITOR VALUES ARE IN μF. ($P=10^{-6}$ μF)
3. VOLTAGE READINGS TO COMMON GROUND ARE MEASURED WITH V.T.V.M UNDER NO SIGNAL.
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MAIN AMP P.C.B. Bottom